

Interdisciplinary Instrumentation Colloquium

Large-Scale Bolometer Arrays for Next-Generation CMB Experiments

Speaker: Helmuth Spieler
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Date: Wednesday, November 15, 2006

Time: 4:00 PM sharp

Place: LBNL, Building 50 Auditorium
(directions at <http://InstrumentationColloquium.LBL.gov>)

Large bolometer arrays are required to provide the sensitivity for next-generation CMB experiments. This talk describes developments by the UCB-LBNL group for CMB anisotropy and polarization measurements. Superconducting transition-edge sensors operating at about 0.3K in combination with SQUID amplifiers provide the required sensitivity. Monolithic fabrication techniques integrate polarization-sensitive antennas, bandpass filters, and bolometers to measure both polarizations in each pixel. The readout utilizes a novel frequency-domain multiplexing technique. Complete systems for both APEX-SZ on the Atacama plateau in Chile and the South Pole Telescope will be fielded this winter. The technology has also been applied to precision x-ray and gamma-ray detection.

Presentations (pdf files) and dates of future colloquia are posted at
<http://InstrumentationColloquium.LBL.gov>

Suggestions for speakers and topics are welcome. Please contact
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